

Claims:

1. A fastener for use in a plasma processing system comprising:
an enlarged head;
a mating section; and
a plasma resistant coating.
2. The fastener of claim 1 wherein the coating comprises Al_2O_3 .
3. The fastener of claim 1 wherein the coating comprises Al_2O_3 and Y_2O_3 .
4. The fastener of claim 1 wherein the coating comprises a compound containing at least one of a III-column element and a Lanthanone element.
5. The fastener of claim 4 wherein the III-column element comprises at least one of Cerium, Dysprosium, and Europium.
6. The fastener of claim 1 wherein the coating comprises at least one of Y_2O_3 , Sc_2O_3 , Sc_2F_3 , La_2O_3 , CeO_2 , Eu_2O_3 or Dy_2O_3 .
7. The fastener of claim 1 wherein the enlarged head comprises a recess.
8. The fastener of claim 7 wherein said recess comprises an elongate female recess.
9. The fastener of claim 7 wherein said recess comprises a square recess.
10. The fastener of claim 7 wherein said recess comprises a hexagonal recess.
11. The fastener of claim 7 wherein said recess comprises an ovular recess.
12. The fastener of claim 1 wherein the enlarged head comprises a male shape.
13. The fastener of claim 12 wherein the male shape comprises a geometrical shape.
14. The fastener of claim 13 wherein the male shape comprises a hexagon.
15. The fastener of claim 12 wherein the male shape comprises a non-geometrical shape.

16. The fastener of claim 1 wherein the plasma resistant coating comprises a sprayed on coating.
17. The fastener of claim 16 wherein the enlarged head is resistant to plasma etching.
18. The fastener of claim 1 wherein a thickness of the coating is uniform along a first specified surface.
19. The fastener of claim 1 wherein the thickness of the coating is variable along a first specified surface.
20. A method of manufacturing a plasma resistant fastener comprising:
 - machining the fastener;
 - cleaning the fastener; and
 - forming a coating on the fastener sufficient to protect at least a portion of the fastener from plasma etching.
21. The method of claim 20 wherein the fastener is anodized after it is cleaned but before the coating is formed.
22. The method of claim 21 wherein a mask is applied to the fastener after the fastener is cleaned but before the fastener is anodized.
23. The method of claim 22 wherein the mask is removed from the fastener after the coating has been applied.
24. A method of making a fastener resistant to plasma etching comprising the steps of:
 - partially machining the fastener;
 - anodizing the fastener to form an anodization layer;
 - completing the partial machining of the fastener to a desired finish; and
 - forming a coating on said fastener sufficient to protect at least a portion of the

fastener from plasma etching.